

## Title (en)

Variable-geometry turbocharger with asymmetric divided volute for engine exhaust gas pulse optimization

## Title (de)

Abgasturbolader mit veränderbarer Geometrie mit asymmetrischem und geteiltem Gehäuse für Abgaspuls Optimierung

## Title (fr)

Turbocompresseur à géométrie variable avec volute divisée en deux parties permettant l'optimisation de l'impulsion des gaz d'échappement

## Publication

**EP 2022963 A3 20120606 (EN)**

## Application

**EP 08161608 A 20080731**

## Priority

US 83411507 A 20070806

## Abstract (en)

[origin: EP2022963A2] A turbine assembly for a variable-geometry turbocharger includes a turbine housing defining a divided volute having first and second scrolls, wherein the first scroll has a substantially smaller volume than the second scroll. The first scroll feeds exhaust gas to a first portion of a turbine wheel upstream of the throat of the wheel, while the second scroll feeds gas to a second portion of the wheel at least part of which is downstream of the throat. Flow from the second scroll is regulated by a sliding piston. The first scroll can be optimized for low-flow conditions such that the turbocharger can operate effectively like a small fixed-geometry turbocharger when the piston is closed. The turbine housing defines an inlet that is divided by a dividing wall into two portions respectively feeding gas to the two scrolls, a leading edge of the dividing wall being downstream of the inlet mouth.

## IPC 8 full level

**F02C 6/12** (2006.01); **F01D 9/02** (2006.01); **F02B 37/02** (2006.01)

## CPC (source: EP US)

**F01D 9/026** (2013.01 - EP US); **F02C 6/12** (2013.01 - EP US); **F02B 37/025** (2013.01 - EP US); **F02B 37/24** (2013.01 - EP US); **F05D 2220/40** (2013.01 - EP US)

## Citation (search report)

- [Y] US 4776168 A 19881011 - WOOLLENWEBER WILLIAM E
- [Y] JP 2007192130 A 20070802 - TOYOTA MOTOR CORP, et al
- [A] US 3557549 A 19710126 - WEBSTER DONALD F
- [A] DE 102006000340 A1 20070125 - TOYOTA MOTOR CO LTD [JP]

## Cited by

US11891921B2

## Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

## Designated extension state (EPC)

AL BA MK RS

## DOCDB simple family (publication)

**EP 2022963 A2 20090211**; **EP 2022963 A3 20120606**; **EP 2022963 B1 20130821**; CN 101368488 A 20090218; CN 101368488 B 20131030; US 2009041577 A1 20090212; US 7828517 B2 20101109

## DOCDB simple family (application)

**EP 08161608 A 20080731**; CN 200810161157 A 20080805; US 83411507 A 20070806